



MURANGA UNIVERSITY COLLEGE

(A constituent College of Jomo Kenyatta University of Agriculture & Technology)

MAIN CAMPUS

ORDINARY UNIVERSITY EXAMINATIONS

2015/2016 ACADEMIC YEAR

SECOND YEAR FIRST SUPPLEMENTARY

FOR THE DEGREE

OF

BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

COURSE CODE: ICS2104

COURSE TITLE: OBJECT ORIENTED PROGRAMMING 1

DATE: 2015

TIME: Two Hours

INSTRUCTIONS TO CANDIDATES

Answer Question ONE (1) and any other TWO Questions

MRUC observes ZERO tolerance to examination irregularities

This Paper Consists of 2 Printed Pages. Please Turn Over. ►

QUESTION ONE [30 marks] -Compulsory

- a) State **two** major advantages of object oriented programming. 2 marks
- b) Define the following terms used in object oriented programming. 4 marks
 - i. Inheritance
 - ii. Polymorphism
- c) Explain **two** reasons for implementing abstraction in C++ programs 4 marks
- d) Write C++ statements to perform the following tasks **6 marks**
(the parts are related to each other):

Task	Statement
Declare a variable of type Student	
Set the student's age to 20	
Set the student's name to your name (first and last name)	
Declare a pointer that points to a data of type Student	
Make the pointer point to the variable declared in part (a)	
Print the first name of the student using the pointer from part (e)	

- e) Develop a C++ program using a function which returns the surface area of a closed cylinder whose height is h and radius is r. 8 marks
- f) Write a C++ program which evaluates the sum: $1 + 2 + 3 + \dots + n$ via a while loop. 6 marks

QUESTION TWO [20 marks]

- a) Use the count controlled loop in C++ programming to generate a program which calculates the interest of a balance on a bank account by prompting the user to input initial balance, interest rate and the number of years. The program outputs the year, account balance of each year, and the final balance of the account. 12 marks
- b) Write the syntax of a C++ constructor 2marks
 - ii) Differentiate a default constructor, a copy constructor and parameterized constructor 2 marks

- c) Explain the meaning of the following section of a C++ program. 4 marks

```

Class Point {
Public:
Point (int xc, int yc);
Int get x ();
Int get y();
Private:
Int x,y;
};
    
```

QUESTION THREE [20 marks]

- a) Describe any **four** types of errors encountered in programming 4 marks
- b) Describe the main tasks performed by the keyword return in a function. 4 marks
- ii) Explain the meaning of the keyword void in a C++ program. 2 marks
- c) Write C++ program statements to perform the following requirements.
- i. Declare an array alpha of 17 components of type int. 4 marks
- ii. Output the value of the 12th component of the alpha array. 3 marks
- iii. Set the value of the 5th component of the alpha array to 35. 3 marks

QUESTION FOUR [20 marks]

a) Use the function `sum()` to develop a C++ program to be used to input two integers, calculate their sum and then outputs sum on the screen. 8 marks

b) Purity intends to use references in her C++ program. Explain three ways she could use the references. 6 marks

ci) Define the term *array* as used in OOP. 2 marks

ii) Outline **four** advantages of using arrays in a program. 4 marks